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Estimation of Phenolic Content, Flavonoid Content, and Antioxidant Activities of Selected Fruits in Sri Lanka

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Abstract

The aim of this study was to evaluate the Total Phenolic Content (TPC), Total Flavonoid Content (TFC), and *in vitro* antioxidant activity, of six underutilized fruits in Sri Lanka. The selected fruits are *Elaeocarpus angustifolius* L (Ceylon blue olive), *Elaeocarpus serratus* L (Veralu), *Manikara zapota* L (Sapadilla), *Ziziphus mauritiana* L (Masan), *Flacourtia indica* L (Ugurassa) , and *Garcinia xanthochymus* L (Ratagoraka). The fruit extracts were prepared with 100% methanol, and crude extract (CE) of fruit was fractionated into hexane (HX), ethyl acetate (EA), and aqueous (AQ). TFC and TPC of each fraction were determined by aluminium chloride colourimetric and Folin-ciocalteu methods using 96 well microplates respectively. Antioxidant activities were determined using Ferric reducing power (FRAP), and Oxygen radical absorbance capacity (ORAC) assay methods. Among different fractions, the highest TPC and TFC were found in AQ of veralu (377.57 $\pm$ 65.65 mg GAE/ g of extract), CE of Masan (357.04 $\pm$ 9.63 mg GAE/ g of extract), EA of Ugurassa (173.47 $\pm$ 18.891 mg GAE/ g of extract), and EA of Ceylon blue olive (49.14 $\pm$ 1 .60 mg QE / g of extract). The highest FRAP was found in AQ of Ugurassa (745.90 $\pm$ 23.06 mg TE/ g of extract), CE of Veralu (668.75 $\pm$ 7.7 mg TE/ g of extract), and EA of Ratagoraka (650.51 $\pm$ 6.88 mg TE/ g of extract). The highest ORAC was shown in AQ of Ratagoraka (113.72 $\pm$ 17.78 mg TE/ g of extract), CE of Veralu (31.38 $\pm$ 0.25 mg TE/ g of extract), and EA of Ratagoraka (143.24 $\pm$ 3.09 mg TE/ g of extract). In conclusion, Sapadilla, Ratagoraka, and Veralu possessed the highest antioxidant capacity compared to other fruit types. Thus, the CE fraction of Masan, the AQ fraction of Ugurassa, and the EA fractions of Ratagoraka will be good sources of antioxidants for the formulation of food supplements.

Keywords: *Antioxidant activity, Underutilised fruits, Food supplements*